



REC'D NOV 05 1987

DM 5 1688

MATERIAL SAFETY DATA SHEET

MSDS NUMBER

23-7

PAGE 1

24 HOUR EMERGENCY ASSISTANCE

SHELL: 713-473-9461 CHEMTREC: 800-424-9300

GENERAL MSDS ASSISTANCE

SHELL: 713-241-4819

BE SAFE

READ OUR PRODUCT
SAFETY INFORMATION
... AND
PASS IT ON(PRODUCT LIABILITY LAW
REQUIRES IT)

ACUTE HEALTH



2

FIRE



1

REACTIVITY



0

HAZARD RATING

LEAST - 0

SLIGHT - 1

MODERATE - 2

HIGH - 3

EXTREME - 4

*For acute and chronic health effects refer to the discussion in Section III

SECTION I

NAME

PRODUCT ▶ EPON(R) RESIN 828

CHEMICAL NAME ▶ BISPHENOL A/EPICHLOROHYDRIN BASED EPOXY RESIN

CHEMICAL FAMILY ▶ EPOXY RESIN

SHELL CODE ▶ 43240

SECTION II-A

PRODUCT/INGREDIENT

NO.

COMPOSITION

CAS NUMBER

PERCENT

P BISPHENOL A/EPICHLOROHYDRIN EPOXY RESIN

25068-38-6

100

THIS PRODUCT IS AN EPOXY RESIN PRODUCED BY THE CONDENSATION REACTION OF EPICHLOROHYDRIN AND BISPHENOL-A. THESE RAW MATERIALS ARE CONSUMED IN THE PROCESS. RESIDUAL LEVELS OF EPICHLOROHYDRIN ARE CONTROLLED TO 1 PPM, MAX., IN THE PRODUCT. RESIDUAL LEVELS OF BISPHENOL-A ARE TYPICALLY <100 PPM.

SECTION II-B

ACUTE TOXICITY DATA

NO.

ACUTE ORAL LD50

ACUTE DERMAL LD50

ACUTE INHALATION LC50

P 11.4 G/KG (RAT)

> 20 ML/KG (RABBIT)

NO DEATHS IN SAT'D AIR, 8 HR*

P 15.6 G/KG (MOUSE)

*THIS INHALATION TEST MAY NOT BE RELEVANT DUE TO LOW VOLATILITY OF THE RESIN.

SECTION III

HEALTH INFORMATION

THE HEALTH EFFECTS NOTED BELOW ARE CONSISTENT WITH REQUIREMENTS UNDER THE OSHA HAZARD COMMUNICATION STANDARD (29 CFR 1910.1200).

EYE CONTACT

BASED ON PRODUCT TESTING PRODUCT IS MODERATELY IRRITATING TO THE EYES. CONTACT WITH PRODUCT AT ELEVATED TEMPERATURES CAN RESULT IN THERMAL BURNS.

SKIN CONTACT

BASED ON PRODUCT TESTING PRODUCT IS MODERATELY IRRITATING TO THE SKIN. BASED ON PRODUCT TESTING PRODUCT MAY CAUSE SKIN SENSITIZATION. CONTACT WITH PRODUCT AT ELEVATED TEMPERATURES CAN RESULT IN THERMAL BURNS.

INHALATION

BECAUSE OF ITS LOW VOLATILITY THIS PRODUCT IS NOT LIKELY TO BE AN INHALATION HAZARD.

INGESTION

BASED ON PRODUCT TESTING PRODUCT IS CONSIDERED TO HAVE A LOW ORDER OF ACUTE ORAL TOXICITY.

SIGNS AND SYMPTOMS

IRRITATION AS NOTED. SKIN SENSITIZATION (ALLERGY) MAY BE EVIDENCED BY RASHES, ESPECIALLY HIVES.

AGGRAVATED MEDICAL CONDITIONS

PREEXISTING SKIN AND EYE DISORDERS MAY BE AGGRAVATED BY EXPOSURE TO THIS PRODUCT. PREEXISTING SKIN OR LUNG ALLERGIES MAY INCREASE THE CHANCE OF DEVELOPING INCREASED ALLERGY SYMPTOMS FROM EXPOSURE TO THIS PRODUCT.

SECTION IV

OCCUPATIONAL EXPOSURE LIMITS

NO.	OSHA PEL/TWA	OSHA PEL/CEILING	ACGIH TLV/TWA	ACGIH TLV/STEL	OTHER
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NO OSHA NOR ACGIH LIMITS HAVE BEEN ESTABLISHED FOR THIS PRODUCT.

SECTION V

EMERGENCY AND FIRST AID PROCEDURES

EYE CONTACT

FLUSH EYES WITH PLENTY OF WATER FOR 15 MINUTES WHILE HOLDING EYELIDS OPEN. GET MEDICAL ATTENTION. IF CONTACT WITH HOT PRODUCT OCCURS IMMEDIATELY FLUSH WITH COOL WATER FOR 15 MINUTES. GET MEDICAL ATTENTION IMMEDIATELY.

SKIN CONTACT

REMOVE CONTAMINATED CLOTHING/SHOES AND WIPE EXCESS FROM SKIN. FLUSH SKIN WITH WATER. FOLLOW BY WASHING WITH SOAP AND WATER. IF IRRITATION OCCURS, GET MEDICAL ATTENTION. DO NOT REUSE CLOTHING UNTIL CLEANED. CONTAMINATED LEATHER ARTICLES, INCLUDING SHOES, CANNOT BE DECONTAMINATED AND SHOULD BE DESTROYED TO PREVENT REUSE. **CONTINUED UNDER NOTE TO PHYSICIAN.**

INHALATION

REMOVE VICTIM TO FRESH AIR AND PROVIDE OXYGEN IF BREATHING IS DIFFICULT. GET MEDICAL ATTENTION.

INGESTION

DO NOT INDUCE VOMITING. IN GENERAL, NO TREATMENT IS NECESSARY UNLESS LARGE QUANTITIES OF PRODUCT ARE INGESTED. HOWEVER, GET MEDICAL ADVICE.*

NOTE TO PHYSICIAN

*IN GENERAL, EMESIS INDUCTION IS UNNECESSARY IN HIGH VISCOSITY, LOW VOLATILITY PRODUCTS, E.G., NEAT EPOXY RESINS. SKIN CONTACT, CONT'D: IF CONTACT WITH HOT PRODUCT OCCURS IMMEDIATELY FLUSH WITH COOL WATER FOR 15 MINUTES. CAREFULLY REMOVE CLOTHING; IF CLOTHING IS STUCK TO A BURN AREA DO NOT PULL IT OFF, BUT CUT AROUND IT. COVER BURN AREA WITH A CLEAN MATERIAL. GET MEDICAL ATTENTION IMMEDIATELY.

SECTION VI

SUPPLEMENTAL HEALTH INFORMATION

A. MUTAGENICITY: BOTH THIS PRODUCT AND THE DIGLYCIDYL ÉTHER OF BISPHENOL-A (DGEBA), ITS MAJOR CONSTITUENT, HAVE PROVED TO BE INACTIVE IN SEVERAL IN VIVO ASSAYS. THEY HAVE BOTH SHOWN MUTAGENIC ACTIVITY IN MICROBIAL SCREENING TESTS AND HAVE PRODUCED CHROMOSOMAL ABERRATIONS IN CULTURED RAT LIVER CELLS. THE SIGNIFICANCE OF THIS INFORMATION TO MAN IS UNKNOWN, PARTICULARLY IN VIEW OF THE NEGATIVE CARCINOGENICITY DATA.

B. CARCINOGENICITY: ALTHOUGH OF LIMITED DESIGN AND/OR DURATION, ALL EARLY STUDIES WITH THIS PRODUCT AND/OR DGEBA BY RELEVANT ROUTES OF EXPOSURE HAVE BEEN NEGATIVE. A NUMBER OF MORE RECENT 2-YEAR SKIN PAINTING STUDIES (MICE) WITH BOTH THIS PRODUCT AND DGEBA HAVE YIELDED NO EVIDENCE OF LOCAL OR SYSTEMIC CARCINOGENICITY.

SECTION VII PHYSICAL DATA

BOILING POINT: >500*
(DEG F) SPECIFIC GRAVITY: 1.17
(H2O=1) VAPOR PRESSURE: 0.03 AT
(MM HG) 77 DEG C

MELTING POINT: NOT AVAILABLE SOLUBILITY: NEGLIBLE VAPOR DENSITY: NOT APPLICABLE
(DEG F) (IN WATER) (AIR=1)

EVAPORATION RATE (N-BUTYL ACETATE = 1): NOT APPLICABLE *SEE FLASH POINT

APPEARANCE AND ODOR: VERY LIGHT YELLOW, VERY VISCOUS LIQUID.

SECTION VIII FIRE AND EXPLOSION HAZARDS

FLASH POINT AND METHOD: 480 DEG F (PMCC) FLAMMABLE LIMITS % VOLUME IN AIR
LOWER: N/AV UPPER: N/AV

EXTINGUISHING MEDIA
USE WATER, FOG, FOAM, DRY CHEMICAL OR CO2.

SPECIAL FIRE FIGHTING PROCEDURES AND PRECAUTIONS

MATERIAL WILL NOT BURN UNLESS PREHEATED. DO NOT ENTER CONFINED FIRE SPACE WITHOUT FULL BUNKER GEAR (HELMET WITH FACE SHIELD, BUNKER COATS, GLOVES AND RUBBER BOOTS), INCLUDING A POSITIVE PRESSURE NIOSH APPROVED SELF-CONTAINED BREATHING APPARATUS. COOL FIRE EXPOSED CONTAINERS WITH WATER.

UNUSUAL FIRE AND EXPLOSION HAZARDS

SEE SECTION XII.

SECTION IX REACTIVITY

STABILITY: STABLE

HAZARDOUS POLYMERIZATION: WILL NOT OCCUR

CONDITIONS AND MATERIALS TO AVOID:

CAN REACT VIGOROUSLY WITH STRONG OXIDIZING AGENTS, STRONG LEWIS OR MINERAL ACIDS, AND STRONG MINERAL AND ORGANIC BASES/ESPECIALLY PRIMARY AND SECONDARY ALIPHATIC AMINES.

HAZARDOUS DECOMPOSITION PRODUCTS

CARBON MONOXIDE, ALDEHYDES, ACIDS, AND OTHER ORGANIC SUBSTANCES MAY BE FORMED DURING COMBUSTION OR ELEVATED (>500 DEG F) TEMPERATURE DEGRADATION. REACTION WITH SOME CURING AGENTS MAY PRODUCE CONSIDERABLE HEAT. RUN-A-WAY CURE REACTIONS MAY CHAR AND DECOMPOSE THE RESIN SYSTEM, GENERATING UNIDENTIFIED FUMES AND VAPORS WHICH MAY BE TOXIC. SEE SECTION XII.

SECTION X EMPLOYEE PROTECTION**RESPIRATORY PROTECTION**

NOT ORDINARILY REQUIRED.

PROTECTIVE CLOTHING

AVOID CONTACT WITH EYES. WEAR SAFETY GLASSES OR GOGGLES AS APPROPRIATE. AVOID PROLONGED OR REPEATED CONTACT WITH SKIN. WEAR CHEMICAL-RESISTANT GLOVES AND OTHER CLOTHING AS REQUIRED TO MINIMIZE CONTACT.

SECTION XI ENVIRONMENTAL PROTECTION**SPILL OR LEAK PROCEDURES**

MAY BURN ALTHOUGH NOT READILY IGNITABLE. USE CAUTIOUS JUDGMENT WHEN CLEANING UP LARGE SPILLS. *** LARGE SPILLS *** WEAR RESPIRATOR AND PROTECTIVE CLOTHING AS APPROPRIATE. SHUT OFF SOURCE OF LEAK IF SAFE TO DO SO. DIKE AND CONTAIN. REMOVE WITH VACUUM TRUCKS OR PUMP TO STORAGE/SALVAGE VESSELS.

SOAK UP RESIDUE WITH AN ABSORBENT SUCH AS CLAY, SAND OR OTHER SUITABLE MATERIAL; DISPOSE OF PROPERLY. FLUSH AREA WITH WATER TO REMOVE TRACE RESIDUE. *** SMALL SPILLS *** TAKE UP WITH AN ABSORBENT MATERIAL AND DISPOSE OF PROPERLY.

WASTE DISPOSAL

IF THIS PRODUCT BECOMES A WASTE, IT WOULD NOT BE A HAZARDOUS WASTE BY RCRA CRITERIA (40 CFR 261). PLACE IN AN APPROPRIATE DISPOSAL FACILITY IN COMPLIANCE WITH LOCAL REGULATIONS.

ENVIRONMENTAL HAZARDS

EPA - COMPREHENSIVE ENVIRONMENTAL RESPONSE, COMPENSATION AND LIABILITY ACT. UNDER EPA-CERCLA ("SUPERFUND") RELEASES TO AIR, LAND OR WATER MAY BE REPORTABLE TO THE NATIONAL RESPONSE CENTER, 800-424-8802 (CIRCUMSTANCES SURROUNDING THE RELEASE AND CLEANUP DETERMINE REPORTABILITY).

KEEP OUT OF SURFACE WATERS, SEWERS, AND WATERWAYS ENTERING OR LEADING TO SURFACE WATERS. NOTIFY AUTHORITIES IF ANY EXPOSURE TO THE GENERAL PUBLIC OR ENVIRONMENT OCCURS OR IS LIKELY TO OCCUR.

SECTION XII**SPECIAL PRECAUTIONS**

STORE IN A COOL, DRY PLACE. KEEP AWAY FROM OPEN FLAMES AND HIGH TEMPERATURES.

CONTAINERS, EVEN THOSE THAT HAVE BEEN EMPTIED, CAN CONTAIN HAZARDOUS PRODUCT RESIDUES. HANDLE IN ACCORDANCE WITH THE HAZARD POTENTIAL OF CURING AGENT(S) USED. CAUTION: MAY CAUSE IRRITATION. AVOID CONTACT WITH EYES. AVOID PROLONGED OR REPEATED CONTACT WITH SKIN. WASH WITH SOAP AND WATER BEFORE EATING, DRINKING, SMOKING, APPLYING COSMETICS, OR USING TOILET FACILITIES. LAUNDRY CONTAMINATED CLOTHING BEFORE REUSE. CONTAMINATED LEATHER ARTICLES, INCLUDING SHOES, CANNOT BE DECONTAMINATED AND SHOULD BE DESTROYED.

HEATING THIS RESIN ABOVE 300 DEG F IN THE PRESENCE OF AIR MAY CAUSE SLOW OXIDATIVE DECOMPOSITION ABOVE 500 DEG F, POLYMERIZATION MAY OCCUR. SOME CURING AGENTS, E.G., ALIPHATIC POLYAMINES CAN PRODUCE EXOTHERMIC REACTIONS WHICH IN LARGE MASSES CAN CAUSE RUNAWAY POLYMERIZATION AND CHARRING OF THE REACTANTS. FUMES AND VAPORS FROM THESE THERMAL AND CHEMICAL DECOMPOSITIONS VARY WIDELY IN COMPOSITION AND TOXICITY. DO NOT BREATHE FUMES.

USE A NIOSH-APPROVED RESPIRATOR AS REQUIRED TO PREVENT OVER EXPOSURE. IN ACCORD WITH 20 CFR 1910.134, USE EITHER AN ATMOSPHERE-SUPPLY RESPIRATOR OR AN AIR-PURIFYING RESPIRATOR FOR ORGANIC VAPORS. IF THIS RESIN IS HANDLED, SHIPPED, OR STORED IN BULK, THE RECOMMENDED PUMPING TEMPERATURE IS 180 DEG. F, MAX. TO PREVENT THERMAL BURNS, AVOID SKIN AND EYE CONTACT WITH HOT LIQUID.

SECTION XIII**TRANSPORTATION REQUIREMENTS**

DEPARTMENT OF TRANSPORTATION CLASSIFICATION: NOT HAZARDOUS BY D.O.T. REGULATIONS
D.O.T. PROPER SHIPPING NAME: NOT REGULATED

OTHER REQUIREMENTS:

N/A

SECTION XIV**OTHER REGULATORY CONTROLS**

THIS PRODUCT IS LISTED ON THE EPA/TSCA INVENTORY OF CHEMICAL SUBSTANCES.

PRODUCT NAME: EPON(R) RESIN 828

MSDS
PAGE

23-7
5

THE INFORMATION CONTAINED HEREIN IS BASED ON THE DATA AVAILABLE TO US AND IS BELIEVED TO BE CORRECT. HOWEVER, SHELL MAKES NO WARRANTY, EXPRESSED OR IMPLIED REGARDING THE ACCURACY OF THESE DATA OR THE RESULTS TO BE OBTAINED FROM THE USE THEREOF. SHELL ASSUMES NO RESPONSIBILITY FOR INJURY FROM THE USE OF THE PRODUCT DESCRIBED HEREIN.

DATE PREPARED: OCTOBER 21, 1987

JOHN P. SEPESE

BE SAFE
READ OUR PRODUCT
SAFETY INFORMATION ...AND PASS IT ON
(PRODUCT LIABILITY LAW
REQUIRES IT)

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